

What is claimed is:

1 1. A system development method for developing a system
2 using a development-support system made up of a server used to
3 provide information about functional units each implementing a
4 different function and files describing said different functions,
5 at least one developer client to develop said functional units
6 and at least one user client to develop said system configured
7 to perform desired operations by combining said functional unit,
8 wherein all of said server, said developer client and said user
9 client are connected through the Internet, comprising:

10 a first step, to be taken by said user client, of registering
11 an operator of said user client as a user of said development-support
12 system;

13 a second step, to be taken by said user client, of obtaining,
14 by referring to information about said functional units, files
15 describing a plurality of said functional units which are needed
16 for development of said system and are given an assurance level
17 that meets specifications of said system; and

18 a third step, to be taken by said user client, of developing
19 said system by combining files describing said plurality of
20 functional units.

1 2. The system development method according to Claim 1,
2 wherein, in said first step, any one of access levels is assigned
3 including a first access level at which an access only to an outline
4 of information about said functional unit is allowed, a second
5 access level at which an access only to an outline and details
6 of information about said functional unit is allowed and a third

7 access level at which acquisition of said files is allowed.

1 3. The system development method according to Claim 2,
2 wherein, in said first step, setting of said access level is made
3 based on said assurance level, security level, and price level
4 of each of said functional units and on a region level and/or right
5 level of said user client.

1 4. The system development method according to Claim 1,
2 wherein, in said second step, said files of said plurality of
3 functional units are allowed to be obtained only when an application
4 for individual or collective acquisition of said files is made
5 and a right to acquire said files is granted through examination
6 of said application for acquisition of each of said functional
7 units or of every collective group of said functional units.

1 5. The system development method according to Claim 1,
2 where in said assurance level is anyone of levels including a general
3 assurance level at which said functional unit is assured of
4 operations without any problem under general conditions, a
5 non-operational condition level at which said functional unit is
6 found not to operate under specified conditions, an operational
7 condition level at which said functional unit is assured of
8 operations under specified conditions, a non-assured level at which
9 said functional unit operates only under very-limited conditions
10 and a yet-to-be-completed level at which said functional unit is
11 scheduled to be developed or is under development.

1 6. The system development method according to Claim 3,

2 wherein said security level is either of two levels set by a developer
3 of each functional block including a level set to each of functional
4 blocks at which all user clients are allowed to browse and a level
5 set to said each of functional block at which only a user having
6 concluded a special contract with said developer of said each
7 functional block is allowed to browse.

1 7. The system development method according to Claim 5,
2 wherein, in said second step, said file of said functional unit
3 with said yet-to-be-completed level is allowed to be obtained only
4 when a user has concluded a special contract with said developer
5 of said functional unit or when a permission from other competitive
6 users of said functional block is acquired.

1 8. The system development method according to Claim 5,
2 wherein, in said second step, a reference is allowed to be made
3 to at least a name, development schedule and outline of functions
4 of said functional block with said yet-to-be-completed level.
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1 9. The system development method according to Claim 8,
2 wherein, in said second step, more detailed information about said
3 functional unit with said yet-to-be-completed level is allowed
4 to be acquired or question information including a scheduled data
5 or functions of said functional unit with said yet-to-be-completed
6 level is allowed to be transmitted.

1 10. The system development method according to Claim 1,
2 wherein said system is a semiconductor device and said functional
3 unit is a basic logic element or a basic logic circuit constructed

4 by combining a plurality of basic logic elements.

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1 11. The system development method according to Claim 1,
2 wherein said system is a semiconductor device and said functional
3 unit is a central processing unit, storage device, buffer, and
4 peripheral device and wherein a file of said peripheral device
5 is so constructed as to be able to select either of a file to implement
6 its function by using hardware or a file to implement its function
7 by using software.

1 12. The system development method according to Claim 1,
2 wherein said system is software and said functional unit is a routine
3 or object to perform predetermined processing.

1 13. A storage medium storing system development program
2 for causing a computer to execute a method for developing a system
3 using a development-support system made up of a server used to
4 provide information about functional units each implementing a
5 different function and files describing said different functions,
6 at least one developer client to develop said functional units
7 and at least one user client to develop said system configured
8 to perform desired operations by combining said functional unit,
9 wherein all of said server, said developer client and said user
10 client are connected through the Internet, comprising:

11 a first step, to be taken by said user client, of registering
12 an operator of said user client as a user of said development-support
13 system;

14 a second step, to be taken by said user client, of obtaining,
15 by referring to information about said functional units, files

16 describing a plurality of said functional units which are needed
17 for development of said system and are given an assurance level
18 that meets specifications of said system; and
19 a third step, to be taken by said user client, of developing
20 said system by combining files describing said plurality of
21 functional units.

1 14. A functional unit development method for developing
2 a functional unit using a development-support system made up of
3 a server used to provide information about functional units each
4 implementing a different function and files describing said
5 different functions, at least one developer client to develop said
6 functional unit and at least one user client to develop said system
7 configured to perform desired operations by combining said functional
8 units, wherein all of said server, developer client and user client
9 are connected through the Internet, comprising:

10 a first step, to be taken by said developer client, of
11 registering an operator of said developer client as a user of said
12 development-support system;

13 a second step, to be taken by said developer client, of
14 transmitting development information of said functional unit that
15 is scheduled to be developed;

16 a third step, to be taken by said developer client, of creating
17 a file describing functions of said functional unit; and

18 a fourth step, to be taken by said developer client, of setting
19 an assurance level, security level, or price level, to said
20 functional unit and registering said file.

1 15. The functional unit development method according to

2 Claim 14, wherein said development information is made up of, at
3 least, its name of said functional unit, scheduled date of
4 development of said functional unit and outline of functions of
5 said functional unit.

1 16. The functional unit development method according to
2 Claim 14, wherein, in said third step, when a result of retrieval
3 of information about other functional units based on said
4 development information shows that a functional unit having a same
5 function has not yet been developed, is not under development and
6 is not scheduled to be developed, said file is created.

1 17. The functional unit development method according to
2 Claim 14, wherein, in said third step, when a result of said retrieval
3 of information about other functional unit based on said
4 development information shows that a functional unit having a same
5 function has been already developed, is under development or is
6 scheduled to be developed, it is decided, by referring to said
7 information about said functional unit, whether development of
8 a functional unit that is scheduled to be developed is halted,
9 continued, or performed in cooperation with other developer of
10 said functional unit being already under development or being
11 scheduled to be developed.

1 18. The functional unit development method according to
2 Claim 14, wherein, in said third step, a progress state of
3 development of said functional unit is transmitted to said server
4 and wherein a change of a scheduled date of development of said
5 functional unit or a change of functions of said functional unit

6 is made by referring to a table storing said development information,
7 said progress state and desires for a scheduled date or functions
8 transmitted from a system developer having referred to said
9 development information and said progress state or from a developer
10 of other functional unit

1 19. The functional unit development method according to
2 Claim 14, wherein said assurance level is anyone of levels including
3 a general assurance level at which said functional unit is assured
4 of operations without any problem under general conditions, a
5 non-operational condition level at which said functional unit is
6 found not to operate under specified conditions, an operational
7 condition level at which said functional unit is assured of
8 operations under specified conditions, a non-assured level at which
9 said functional unit operates only under very-limited conditions
10 and a yet-to-be-completed level at which said functional unit is
11 scheduled to be developed or under development.

1 20. The functional unit development method according to
2 Claim 14, wherein said security level is either of two levels
3 including a level at which all users are allowed to browse or a
4 level at which only a user having concluded a special contract
5 is allowed to browse.

1 21. The functional unit development method according to
2 Claim 14, wherein said system is a semiconductor device and said
3 functional unit is a basic logic element or a basic logic circuit
4 constructed by combining a plurality of basic logic elements.
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1 22. The functional unit development method according to
2 Claim 14, wherein said system is a semiconductor device and said
3 functional unit is a central processing unit, storage device,
4 buffer, and peripheral device and wherein a file of said peripheral
5 device is so constructed as to be able to select either of a file
6 to implement its function by using hardware or a file to implement
7 its function by using software.

1 23. The functional unit development method according to
2 Claim 14, wherein said system is software and said functional unit
3 is a routine or object to perform predetermined processing.

1 24. A storage medium storing system development program
2 for causing a computer to execute a method for developing a
3 functional unit using a development-support system made up of a
4 server used to provide information about functional units each
5 implementing a different function and files describing said
6 different functions, at least one developer client to develop said
7 functional unit and at least one user client to develop said system
8 configured to perform desired operations by combining said functional
9 units, wherein all of said server, developer client and user client
10 are connected through the Internet, comprising:

11 a first step, to be taken by said developer client, of
12 registering an operator of said developer client as a user of said
13 development-support system;

14 a second step, to be taken by said developer client, of
15 transmitting development information of said functional unit that
16 is scheduled to be developed;

17 a third step, to be taken by said developer client, of creating

18 a file describing functions of said functional unit; and
19 a fourth step, to be taken by said developer client, of setting
20 an assurance level, security level, or price level, to said
21 functional unit and registering said file.

1 25. A development-support system comprising:
2 a server used to provide information about functional units
3 each implementing a different function and files describing said
4 different function,
5 at least one developer client to develop said functional
6 units:

7 at least one user client to develop a system configured to
8 perform desired operations by combining said functional units;
9 and
10 wherein all of said server, said developer client and said
11 user client are connected through the Internet,

12 wherein said developer client makes an application for
13 registration of an operator as a user of said development-support
14 system by transmitting a name of said operator and/or an
15 organization to which said operator belongs, transmits development
16 information of said functional unit that is scheduled to be
17 developed, creates a file describing functions of said functional
18 unit and, after setting an assurance level, security level, and/or
19 price level of said functional unit, makes an application for
20 registration of said file,

21 wherein said user client makes an application for
22 registration of said operator as an user of said development
23 -support system by transmitting a name of said operator and/or
24 an organization to which said operator belongs, obtains, by

25 referring to information about said functional unit, a file of
26 a plurality of functional units needed for development of said
27 system and having an assurance level that meets specifications
28 of said system, develops said system by combining files of said
29 plurality of functional units and verifies operations of said
30 developed system,

31 wherein said server examines said applications for
32 registration based on said names of said developer client and said
33 user client and said organizations to which they belong, registers
34 them as users of said development-support system and, at this point,
35 sets a region level depending on a region where said user client
36 exists and, if necessary, a privileged or restrictive right level,
37 makes registrations after examining a file regarding said
38 application for registration made by said developer client, allows
39 other development client and other user client to refer to
40 development information and to said assurance level of said
41 functional unit fed from said developer client based on said
42 security level and allows said user client to obtain files of a
43 plurality of said functional units with a predetermined assurance
44 level.

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1 26. The development-support system according to Claim 25,
2 wherein said development information is made up of at least its
3 name, its scheduled date, and outlines of its functions.

1 27. The development-support system according to Claim 25,
2 wherein said server retrieves information about other functional
3 unit based on said development information and, if said other
4 functional unit having a same function have not yet been developed,

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5 are not under development or are not scheduled to be developed,
6 notifies said developer client of a content and said developer
7 client, when receiving said notification, creates said file.

1 28. The development-support system according to Claim 25,
2 wherein said server retrieves information about other functional
3 unit based on said development information and, if a functional
4 unit having a same function has been already developed, is under
5 development or is scheduled to be developed, notifies said
6 developer client of a content, and said developer client, when
7 receiving said notification, by referring to information about
8 said functional unit, decides whether development of a functional
9 unit scheduled to be developed is halted, continued, or developed
10 in cooperation with a developer of said functional unit being
11 already under development or being scheduled to be developed.

1 29. The development-support system according to Claim 25,
2 wherein said developer client transmits a progress state of
3 development of said functional unit to said server and wherein
4 a change of scheduled date of development of said functional unit
5 or a change of functions of said functional unit is made by referring
6 to a table storing said development information, said progress
7 state and a desire for a scheduled date or functions transmitted
8 from a system developer having referred to said development
9 information and said progress state or from a developer of other
10 functional unit.

1 30. The development-support system according to Claim 25,
2 wherein said assurance level is any one of levels including a general

3 assurance level at which said functional unit is assured of
4 operations without any problem under general conditions, a
5 non-operational condition level at which said functional unit is
6 found not to operate under specified conditions, an operational
7 condition level at which said functional unit is assured of
8 operations under specified conditions, a non-assured level at which
9 said functional unit operates only under very-limited conditions,
10 and a yet-to-be-completed level at which said functional unit is
11 scheduled to be developed or under development.

1 31. The development-support system according to Claim 25,
2 wherein said security level is either of two levels including a
3 level at which all users are allowed to browse or a level at which
4 only a user having concluded a special contract is allowed to browse.
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1 32. The development-support system according to Claim 25,
2 wherein said server, when registering an operator of said user
3 client as a user of said development-support system, assigns any
4 one of access levels including a first access level at which an
5 access only to an outline of information about said functional
6 unit is allowed, a second access level at which an access only
7 to an outline and details of information about said functional
8 unit is allowed, and a third access level at which acquisition
9 of said files is allowed.
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1 33. The development-support system according to Claim 32,
2 wherein setting of said access level is made based on said assurance
3 level, security level, or price level of each of said functional
4 unit.
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1 34. The development-support system according to Claim 25,
2 wherein said user client makes an application for acquisition of
3 each of a plurality of functional units or of said plurality of
4 functional units collectively, said server examines said
5 application for each of said plurality of functional units or for
6 said plurality of functional units collectively and grants said
7 user client said right to acquire, and said user client, based
8 on said granted right, obtains files of said functional unit from
9 said server.

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1 35. The development-support system according to Claim 30,
2 wherein said server allows only a user client having concluded
3 a special contract with a developer of said functional unit or
4 having acquired a permission from other users to obtain files of
5 said functional unit with said non-assured level.

1 36. The development-support system according to Claim 30,
2 wherein said server allows other developer client or said user
3 client to refer to, at least, a name, scheduled date and outlines
4 of functions of a functional unit with a yet-to-be-completed level.
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1 37. The development-support system according to Claim 36,
2 wherein, said user client makes a request asking more detailed
3 information about said functional unit with said yet-to-be
4 -completed level or transmits question information including its
5 scheduled date or its functions, and said server, after having
6 accepted and registered said question information, transmits said
7 question information to a developer client being operated by a
8 developer of said functional unit with said yet-to-be-completed

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9 level.

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1 38. The development-support system according to Claim 25,
2 wherein said system is a semiconductor device and said functional
3 unit is a basic logic element or a basic logic circuit constructed
4 by combining basic logic elements.

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1 39. The development-support system according to Claim 25,
2 wherein said system is a semiconductor device and said functional
3 unit is a central processing unit, storage device, buffer, and
4 peripheral device and wherein a file of said peripheral device
5 is so constructed as to be able to select either of a file to implement
6 its function by using hardware or a file to implement its function
7 by using software.

1 40. The development-support system according to Claim 25,
2 wherein said system is software and said functional unit is a routine
3 or object to perform predetermined processing.

1 41. A storage medium storing system development program
2 for causing a computer to execute functions of a development
3 -support system comprising:

4 a server used to provide information about functional units
5 each implementing a different function and files describing said
6 different function,

7 at least one developer client to develop said functional
8 units;

9 at least one user client to develop a system configured to
10 perform desired operations by combining said functional units;

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11 and
12 wherein all of said server, said developer client and said
13 user client are connected through the Internet,
14 wherein said developer client makes an application for
15 registration of an operator as a user of said development-support
16 system by transmitting a name of said operator and/or an
17 organization to which said operator belongs, transmits development
18 information of said functional unit that is scheduled to be
19 developed, creates a file describing functions of said functional
20 unit and, after setting an assurance level, security level, and/or
21 price level of said functional unit, makes an application for
22 registration of said file,
23 wherein said user client makes an application for
24 registration of said operator as an user of said development
25 -support system by transmitting a name of said operator and/or
26 an organization to which said operator belongs, obtains, by
27 referring to information about said functional unit, a file of
28 a plurality of functional units needed for development of said
29 system and having an assurance level that meets specifications
30 of said system, develops said system by combining files of said
31 plurality of functional units and verifies operations of said
32 developed system,
33 wherein said server examines said applications for
34 registration based on said names of said developer client and said
35 user client and said organizations to which they belong, registers
36 them as users of said development-support system and, at this point,
37 sets a region level depending on a region where said user client
38 exists and, if necessary, a privileged or restrictive right level,
39 makes registrations after examining a file regarding said

40 application for registration made by said developer client, allows
41 other development client and other user client to refer to
42 development information and to said assurance level of said
43 functional unit fed from said developer client based on said
44 security level and allows said user client to obtain files of a
45 plurality of said functional units with a predetermined assurance
46 level.

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